CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory
An ISO 9001:2008 Certified Company
NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/KN/W.No.14/WMM/Gradation/2016-17 21.07.2016

GRADATION FOR WMM

Customer	: **Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
Agency	: **Mr. K. Nagaraj,** Contractor, Bangalore.
Name of Work	: Improvements to roads and drains at 3rd cross (Left Side) 8th main road Bhuvaneshwari Nagara in Bagalagunte Ward No.14, BBMP, Bangalore.
Reference	: BBMP/DZ/AEE/TDSD/PR/419/2016-17 Dated: 28.06.2016
Date of Testing	: 21.07.2016
Material	: WMM
Sample Location	: WMM Mix Plant

Oven Dry Wt (gm): **5000**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	85	85	1.7	98.3	95-100
22.4	1745	1830	36.60	63.40	60-80
11.2	950	2780	55.60	44.40	40-60
4.75	325	3105	62.10	37.90	25-40
2.36	715	3820	76.40	23.60	15-30
0.600	645	4465	89.30	10.70	8-22
0.075	395	4860	97.20	2.80	0-5

Note:

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2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 30 days from the date of testing.

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ಸಹಾಯಕ ಕಾರ್ಯನಿರ್ವಾಹಕ ಅಭಿಯಂತರರು
ಟಿ.ದಾಸರಹಳ್ಳಿ ಉಪ-ವಿಭಾಗ
ಬಾಗಲಗುಂಟೆ, ಬಿಬಿಎಂಪಿ
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Basaveshwaranagar, Bangalore-560 079.

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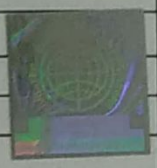
Aggregate Impact Value

IS: 2386 Part IV

Customer	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
Agency	**Mr. K. Nagaraj,** Contractor, Bangalore.
Name of the Work	Improvements to roads and drains at 3rd cross (Left Side) 8th main road Bhuvaneshwari Nagara in Bagalagunte Ward No.14, BBMP, Bangalore.
Reference	BBMP/DZ/AEE/TDSD/PR/419/2016-17 Dated: 28.06.2016
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	21.07.2016



Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	388	390	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	86	88	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	302	302	
4	Aggregate Impact value = percent fines	22.16	22.56	
	$100^* (W_2/W_1)\%$			22.36

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

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DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
Agency	**Mr. K. Nagaraj,** Contractor, Bangalore.
Name of Work	Improvements to roads and drains at 3rd cross (Left Side) 8th main road Bhuvaneshwari Nagara in Bagalagunte Ward No.14, BBMP, Bangalore.
Reference	BBMP/DZ/AEE/TDSD/PR/419/2016-17 Dated: 28.06.2016
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	21.07.2016

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Result : Flakiness Index = **11.63%**

Elongation Index = **13.87%**

Result : Combined Flakiness & Elongation index 25.50%

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

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BITUMEN CONTENT DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

AS per IRC:SP:-1984

CUSTOMER	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	**Mr. K. Nagaraj,** Contractor, Bangalore.
NAME OF THE WORK	Improvements to roads and drains at 3rd cross (Left Side) 8th main road Bhuvaneshwari Nagara in Bagalagunte Ward No.14, BBMP, Bangalore.
REFERENCE	BBMP/DZ/AEE/TDSD/PR/419/2016-17 Dated: 28.06.2016
SAMPLE I/D	3rd cross 8th main Bhuvaneshwari Nagara Ward No.14
DATE OF TESTING	27.07.2016

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	475	474
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	25	26.00
7. Bitumen content in %	5.00	5.20
8. Average	**5.10**	

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BITUMEN CONTENT GRADATION DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

As per IS2386 and IRC:SP:11-1984

CUSTOMER	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	**Mr. K. Nagaraj,** Contractor, Bangalore.
NAME OF THE WORK	Improvements to roads and drains at 3rd cross (Left Side) 8th main road Bhuvaneshwari Nagara in Bagalagunte Ward No.14, BBMP, Bangalore.
REFERENCE	BBMP/DZ/AEE/TDSD/PR/419/2016-17 Dated: 28.06.2016
SAMPLE I/D	3rd cross 8th main Bhuvaneshwari Nagara Ward No.14
DATE OF TESTING	27.07.2016

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	25.65	5.40	5.40	94.60	90-100
4.75	261.5	55.05	60.45	39.55	35-51
2.36	54.85	11.55	72.00	28.00	24-39
1.18	36.23	7.63	79.63	20.37	15-30
0.3	35.47	7.47	87.09	12.91	9-19
0.075	37.12	7.81	94.91	5.09	3-8

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	35.23	7.43	7.43	92.57	90-100
4.75	255.8	53.97	61.40	38.60	35-51
2.36	57.42	12.11	73.51	26.49	24-39
1.18	35.69	7.53	81.04	18.96	15-30
0.3	34.12	7.20	88.24	11.76	9-19
0.075	33.87	7.15	95.39	4.61	3-8

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